

AMENDMENTS TO THE SPECIFICATION

Please replace paragraph 0028 of the specification with the following:

[0028] The nucleotide and amino acid sequence for the isolated *clyA* gene and ClyA protein used in the disclosed work are provided as SEQ ID NO:21 ~~SEQ ID NO:1~~ and SEQ ID NO:2, respectively. Other HlyE family members are also available and known to those of ordinary skill in the art. For example, another *S. Typhi clyA* gene for cytolysin A is available under GENBANK Accession No. AJ313034 (SEQ ID NO:22); *Salmonella paratyphi clyA* gene sequence for cytolysin A is available under GENBANK Accession No. AJ313033 (SEQ ID NO:23); the *Shigella flexneri* truncated HlyE (*hlyE*) gene's complete coding sequence is available under GENBANK Accession No. AF200955 (SEQ ID NO:25); and the *Escherichia coli clyA* gene sequence is available under GENBANK Accession No. AJ001829 (SEQ ID NO:27).

Please replace paragraph 0029 of the specification with the following:

[0029] The HlyE family of proteins typically cause hemolysis in target cells. Hemolytically active or inactive HlyE family members can both be used with the disclosed teachings. For example, it is known that mutation of the *hlyE clyA*-gene can reduce or eliminate hemolytic activity. For example, loss of hemolytic activity has been reported when *hlyE clyA* is mutated such that amino acid substitutions occur at positions 180, 185, 187, and 193. Specifically, G180V, V185S, A187S, and I193S result in a loss of hemolytic activity from a HlyE ClyA-protein expressed from a mutated *hlyE clyA*-gene.

Please replace paragraph 0030 of the specification with the following:

[0030] The present disclosure utilizes the export characteristics of the HlyE family of proteins to produce a protein export system. For example, fusion proteins comprising any member of the HlyE ~~HlyA~~-family and a protein of interest are disclosed. More specifically, fusion proteins comprising ClyA and a protein of interest are disclosed. As discussed below, ClyA-containing fusion proteins are exported from the bacterial host cell and into the surrounding medium. This feature of the expression system comprising an export protein::protein of interest fusion protein component which facilitates production of the protein of interest and exportation of the export protein::protein of interest fusion protein.

Please replace paragraph 0044 of the specification with the following:

[0044] An example of an expression vector is shown in Figure 1. In Figure 1A, the pSEC84 expression vector is shown. The nucleotide sequence of the pSEC84 vector can be found at SEQ ID NO:1~~SEQ ID NO:3~~. The amino acid sequence of ClyA encoded by the *clyA* gene is found at SEQ ID NO:2.

Please replace paragraph 0100 of the specification with the following:

[0100] The *sacB-tetA* cassette was synthesized using primers 8 and 9 with pIB279 template and primers 10 and 4 as above to create a 2653 bp *SpeI* cassette inserted into pSEC84 generating the *clyA::sacB* fusion of pSEC84*sacB* (SEQ ID NO:18) (see Figure 1C). After introduction into CVD 908-*htrA*, colonies were again screened for retention of hemolytic activity, and then examined for levansucrase activity by plating on MacConkey agar base medium (Difco) supplemented with DHB and either sucrose (8% or 16% w/v) or 8% sucrose + 8% arabinose as the sole carbohydrate source. Plates were incubated at 30°C for 16 - 24 hours to

recover isolated cfus and determine fermentation of the carbohydrate; additional incubation at room temperature for several more days was required to observe formation of the polysaccharide-like domes over colonies.